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Approval of Science Related Contracts

Requested Action: Direct the Executive Officer to amend existing agreements to (1) provide $258,645 ($20K U.S. Geological Survey, $238,645K Science Program Prop 50 funds), for publication of the *San Francisco Estuary and Watershed Science* online journal in FY2011/12 (July 2011 to June 2012), and (2) support the 2011 multi-year class of Delta Science Fellows by approving the use of existing Science Fellows funds of $1.151M, and approving the addition of $379,261 Prop 50 funds, for a total of $1.53M from July 2011 to December 2013.

Background

As identified in the Delta Reform Act, "the mission of the Delta Science Program is to provide the best possible scientific information for water and environmental decision making in the Bay-Delta system." The Science Program fulfills this mission in part by adding to the body of best available scientific information through funding research (grants and fellowships) and peer-reviewed publication of research findings.

Online Journal – Background

San Francisco Estuary and Watershed Science (SFEWS) is a unique seven-year old online journal that is the primary source of peer-reviewed, credible science on California Bay-Delta water issues. The journal provides a locally-focused science outlet for rapid publishing of peer-reviewed articles written by agency, stakeholder and university scientists, provided they meet its rigorous requirements for quality, objectivity and credibility. Articles published in the *SFEWS* journal meet the highest standard for "best available science" on topics of most concern to Delta scientists and policy makers, and are freely accessed online, unlike articles from most scientific journals, which require university library privileges.

The articles published in the journal have influence beyond the local scientific community and frequently underlie important policy decisions. For example, an article by W. Kimmerer in 2008 directly addressed the role of water diversions as a source of mortality for delta smelt. This article was heavily cited in the recent Biological Opinions and it helped spur the dialogue and the design of more recent studies and analyses by the agencies and the stakeholders. Equally important, in its next issue, the journal will publish a carefully peer-reviewed dialogue including an alternative analysis to Kimmerer's original article and Kimmerer's reply to that analysis. It is scientific dialogue of this sort, carefully managed to avoid argumentative judgments or poorly substantiated claims, which opens up potential new avenues for water management.

SFEWS articles are widely cited in Bay-Delta policy-relevant documents. Ten different *SFEWS* articles were cited in the 2010 report by the National Research Council's Committee on Sustainable Water and Environmental Management in the California Bay-

Delta. Ten *SFEWS* articles are likewise cited in the State Water Resource Control Board's 2010 report on development of Delta flow criteria and 13 were cited in the November 2010 working draft of the Bay-Delta Conservation Plan.

The list below of the top ten articles downloaded from the *SFEWS* site provides a sense of the breadth and relevance of topics covered in the journal. Interest in the journal has increased since its inception in 2003, as indicated by two performance measures: (1) increase in downloads per quarter, i.e., increased readership (see graph below), and (2) increase in number of draft manuscripts submitted per year AND in requests to publish special issues dedicated to a single topic. This means scientists are choosing to submit manuscripts to THIS journal, rather than to others. Both of these performance measures are signs of journal stature and mean the journal is performing extremely well.

The increased number of papers submitted to the journal will roughly double the number of issues per year from 3 to 6.

Since its inception, the online journal has been supported entirely by the CALFED Science Program (now the Delta Stewardship Council Delta Science Program) using either Science Program U.S. Geological Survey (USGS) federal funds, which supported the journal from 2003 to 2007, or Science Program Prop 50 state funds, which have paid for the journal from 2008 to present.

Online Journal – Budget

An additional year of funding ($258K) for FY 11/12 (July 1 - June 30, 2012) will keep the journal operational through completion of the Delta Plan, and will allow time to develop an alternative long-term funding strategy as part of the Delta Plan finance plan, which will include identifying other cost share partners.

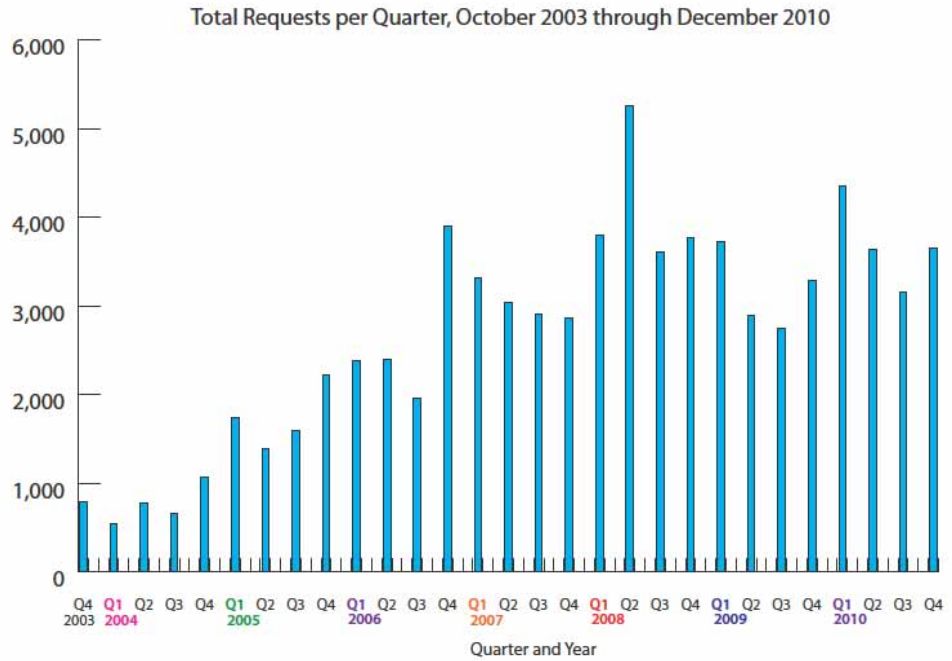
The $258K budget for FY11/12 includes $20,000 in federal Bay-Delta Act funds from the three fish agencies (DFG, FWS and NMFS), who requested the DRERIP (Delta Regional Ecosystem Restoration Implementation Plan) conceptual models to be published in two special issues of the online journal. These special issues will add to the total number of issues published per year, and add to the total cost of the journal.

In summary, the requested amendment will extend the term of the contract to June 30, 2012, and add $238,645 from Prop 50 funds and $20,000 from the U.S. Geological Survey. The amendment budget for FY 2011/12 is shown below.

All issues and archives are available through the Journal website at http://escholarship.org/uc/jmie_sfews.

***San Francisco Estuary and Watershed Science* online journal**			
Budget Summary			
	Fiscal Years		
	2009/2010	**2010/2011**	**2011/2012**
Salaries	$68,268	$77,643	$97,899
Benefits	$24,489	$33,308	$37,258
Supplies, Expenses and Equipment	$18,561	$80,646	$69,759
Travel	$0	$2,000	$2,000
Total direct costs	$111,318	$193,597	$206,916
Indirect costs @25%	$27,874	$48,399	$51,729
TOTAL*	**$139,192**	**$241,996**	**$258,645**
***Note - # of journals issued per year**	**3**	**6**	**6**

TOP 10 Most Downloaded Articles Published in San Francisco Estuary Watershed Science Journal		
Title	Year Published	Total Requests
Subsidence, sea level rise, and seismicity in the Sacramento-San Joaquin Delta	2005	4337
Potential for Increased Mercury Accumulation in the Estuary Food Web	2003	3888
Critical assessment of the delta smelt population in the San Francisco Estuary, California	2005	3683
Open Water Processes of the San Francisco Estuary: From Physical Forcing to Biological Responses	2004	3537
Ecological restoration: guidance from theory	2005	3107
Arsenic in Ground Water: A Review of Current Knowledge and Relation to the CALFED Solution Area with Recommendations for Needed Research	2006	2271
From climate-change spaghetti to climate-change distributions for 21st Century California	2005	2160
Will Restored Tidal Marshes Be Sustainable?	2003	2008
Will Tidal Wetland Restoration Enhance Populations of Native Fishes?	2003	1835
Historical population structure of Central Valley steelhead and its alteration by dams	2006	1734



Delta Science Fellows – Background

Since 2003, the Delta Science Program, in collaboration with the California Sea Grant Program, has supported five classes of 43 graduate and postdoctoral research fellows working on Delta-related projects. The goal of fellowships is to invest in knowledge that will advance our understanding of the complex environments and systems within the Bay-Delta system to aid policy-makers and managers, while training the next generation of research scientists for water issues in California. Past and current Delta Science Fellows are widely published and many have moved on to careers at Bay-Delta universities, agencies or non-governmental organizations. Papers published by Fellows have increased our understanding of the Delta food web, including ammonia effects, salmon migration survival patterns and delta smelt migration, and have supported policy-related documents including the recent Regional Board permit for the Sacramento Regional County Sanitation District. Examples of past and current Science Fellows research topics are below.

Delta Science Fellows – Multi-year Budget

The amendment request is to provide sufficient funding for the 2011 class of nine Delta Science Fellows. Each Fellow receives a 2-year (24-month) grant. The budget for the 2011 class is shown below. Contracts for fellows are all multiple years and in the past have been extended for up to three years.

For more information on the Delta Science Fellows program, go to http://deltacouncil.ca.gov/delta_science_program/research/research_fellow.html

Delta Science Fellows Program							
Budget Summary 2011 Class - Multi-Year Contracts							
				Fiscal Years			
				2011/2012	**2012/2013**	**2013/2014**	**Total**
				12 months	12 months	6 months	
Postdoctoral Fellows (7)				$474,253	$474,253	$237,126	**$1,185,632**
Graduate Fellows (2)				$82,301	$82,301	$41,150	**$205,752**
			subtotal	$556,554	$556,554	$278,277	**$1,391,384**
Administrative Costs (10%)				$55,655	$55,655	$27,828	**$139,138**
			Total	**$612,209**	**$612,209**	**$306,104**	**$1,530,522**

Highlighted Delta Science Fellows Program Research Topics
1. Estimating the contribution of wild fish to the 2008 ocean population of Central Valley Chinook
2. The impact of climate change on severe flooding and water supply.
3. Environmental factors controlling harmful algal bloom formation in San Francisco Bay.
4. Economic risk analysis to examine the management implications of climate change, and other uncertainties, on water supply.
5. Floodplain restoration in the Delta.
6. Characterizing the movement patterns of wild and hatchery steelhead trout.
7. Reducing methyl mercury pollution in the Bay-Delta.
8. Investigating the lower trophic levels of Suisun Bay foodweb: A biomarker specific isotope approach.
9. Endocrine disruption in the Delta: Confirming sites with known estrogenicity with outplants, histology and choriogenin level measurements.
10. Tidal wetland vegetation response to climate change in the San Francisco Bay-Delta: predictive modeling of species distributions in a changing environment.
11. Nutrient and benthic invasion dynamics.
12. Mercury interactions with algae: Effects on mercury bioavailability in the San Francisco Bay Delta.
13. Heterotrophic bacteria and the foodweb of the low salinity zone and salt marsh habitats of the San Francisco estuary.
14. Temperature and salinity effects on the physiology of white sturgeon.
15. Temporal and spatial patterns in abundance and production of pelagic organisms in the low salinity zone (Suisun Marsh, Bay and Delta) of the San Francisco Estuary with insight into position and impact of alien invasive species.
16. Measuring and predicting the success of riparian restoration for wildlife populations: Accommodating uncertainty and complexity.
17. Prey selection of larval and juvenile planktivorous fish in the San Francisco Estuary.
18. Role of exotics as ecosystem engineers affecting estuarine food webs in Suisun Marsh.
19. The impacts of global climate change on Delta fishes: Predicting fish abundance, distribution and community changes.
20. Validation of a new method for population assessment of Pacific Salmonids using Genetic Markers.

Fiscal Information

Prop 50 funding for both amendments is available from current appropriations and both projects are on the Delta Stewardship Council's list for bond funding. Funding of $20K for the online journal amendment is available from a receivable agreement with the U.S. Geological Survey.

Contact

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